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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,586	03/08/2001	Alain Chiodini	034421-162	7794

7590

11/19/2003

ROBERT E. KREBS
THELEN REID & PRIEST LLP
P.O. BOX 640640
SAN JOSE, CA 95164-0640

EXAMINER

HA, DAC V

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/802,586

Applicant(s)

CHIODINI, ALAIN

Examiner

Dac V. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 4-6, 9** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, there is no definition of any of the parameter claimed in claim 5, therefore, rendering claim 5 indefinite.

3. **Claim 4** recites the limitation "said long preamble" in line 2. There is insufficient antecedent basis for this limitation in the claim.
4. **Claim 6** recites the limitation "said signal subspace" and "said non-signal subspace" in line 1-2, and 4, respectively. There is insufficient antecedent basis for this limitation in the claim.
5. **Claim 9** recites the limitation "said signal subspace" and "said non-signal subspace" in line 1-2, and 4, respectively. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

6. **Claim 9** is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 6. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is

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proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Objections

7. **Claims 6, 9** are objected to because of the following informalities: Claims 6, 9 end with a comma. Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Crawford (US 6,633,616) in view of Lee et al. (US 6,150,892) (hereinafter Lee).

Regarding claim 1, Crawford teaches the following claimed subject matter.

“sampling an OFDM radio transmission” (Abstract; Col. 2, line 15; Col. 9, lines 55-56);

“assuming a coarse frequency offset after compensation by a previous circuit that will not exceed approximately ± 10 kHz” (Col. 6, line 49 to Col. 7, line 5; Col. 15, line 53 to Col. 16, line 2; Col. 29, lines 1-4), wherein Crawford implies that tracking stage is effective when the offset (from the coarse stage) is less than ± 10 kHz.

Crawford differs from the claimed invention in that it doesn't teach the claimed subject matter “using a cost function to determine a fine-frequency offset of said OFDM

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radio transmission for use in a subsequent circuit providing for frequency compensation of any fine-frequency offset”.

The attention is now directed to Lee. In the same field of endeavor, Lee teaches that utilization of “cost function” in frequency offset estimation/compensation is known, and could be utilized in both coarse and fine stage (Abstract; Col. 1, lines 43-63; Col. 2, lines 18-37) for improvement by implementing digital circuit.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the utilization of “cost function” as taught by Lee into Crawford to achieve a fine-frequency offset compensation with all digital, which is desired for today technology.

Regarding claim 2, Crawford further teaches the claimed subject matter “determining a coarse frequency offset of said OFDM radio transmission” in Col. 6, line 49 to Col. 7, line 4.

Regarding claim 3, Crawford implies the teaching of the claimed subject matter “compensating any coarse frequency offset determined in a previous step to at worst approximately ± 10 kHz” in Col. 15, line 53 to Col. 16, line 2; Col. 29, lines 1-4.

Regarding claim 4, Crawford further implies the teaching of the claimed subject matter “finding a timing reference boundary between a short preamble and said long preamble in said OFDM radio transmission” in Col. 6, line 49 to Col. 7, line 67, wherein Crawford distinguishes each portion of the signal, thus the boundary between them.

Allowable Subject Matter

10. **Claim 8** is allowed.
11. **Claims 5, 6, 9** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
12. **Claim 7** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 703-306-5536. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-5500.

A handwritten signature in black ink, appearing to read 'Dac V. Ha', with a horizontal line underneath.

Dac V. Ha
Examiner
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